Epidemiologic Approaches for Food Safety (32.1)

Goals-

- **Enhance epidemiologic methods; improve the understanding of epidemiology, ecology and risk factors of food-borne disease; provide specific intervention/control strategies; to develop outcome measurements; address emerging issues in food safety and public health**

Objectives-

- **Identification or evaluation of risk factors**
- **Quantifying effect on food-borne disease from interventions, management strategies, prevention or control programs**
- **Development of quantitative outcome measures**

2007 Priorities

- **Innovative studies which seek to *quantify* the effectiveness of new or existing interventions or management strategies in reducing pathogen loads across farm-to-fork**
- **Innovative studies which seek to identify new risk factors or *quantitative evaluation* of existing risk factors that may affect prevalence, transmission, or persistence of food-borne organisms across farm-to-fork continuum.**

2007 Priorities

- **Development of novel epidemiologic methods that provide the ability to *evaluate* the impact of intervention or management strategies (e.g. epidemiological methods that will facilitate the understanding of quantitative data on pathogen load within the farm-to-fork continuum or facilitate the linking of pre-harvest and post-harvest food safety outcomes to public health outcomes)**

2007 Priority for an Integrated Activity

- **Implementation of effective intervention or management strategies to reduce pathogen load across farm to fork. These projects *must include epidemiological* evaluation or quantification of impact or effectiveness of potential strategies as well as education and/or extension programs for transfer of successful methodologies to industry partners and other scientists.**

Epidemiologic Approaches for Food Safety (32.1)

- **Must have an epidemiologist as an active participant in the study**
- **Primary central focus must be on population-based epidemiologic studies**
- **Can not be primarily laboratory-based**
- **Collaborative research between microbiology and epidemiology**

32.1 Epidemiological Approaches to FS

- **Main focus is on epidemiologic design, population-based study**
- **Limit $1.0 million**
- **Funds around 15-20%**
- **Total budget around $4 million**
- **Deadline December 14, 2006**
- **Contact: Dr. Mary Torrence, (202) 401-6357, mtorrence@csrees.usda.gov**

National Integrated Food Safety Initiative

- At least 2 of 3 components must be included in each funded project
  - Research and Education
  - Research and Extension
  - Education and Extension
- All components addressed should be absolutely necessary to the successful outcome of the project
- NIFSI focuses on applied research

NIFSI - Priority Issue Areas for 06

- Training & certification for industry, retail, and consumers
- Education for consumers
- Source, incidence, and control measures for pathogens in meat, poultry, and dairy
- Improving the safety of fresh fruits and vegetables
- Alternative food processing technologies
- Nat’l support and coordination of integrated food safety programs and resources
- Food defense and biosecurity

NIFSI - Award Amounts and Duration

- Standard Grants - $600,000
  - 3 years
- Bridge Grants - $100,000
  - 2 years
- Conference Grants -- $50,000
  - 2 years
- Special Emphasis Grant -- $2.5 M
  - 4 years
- 37 % Funding Rate for proposals 2005

NIFSI - Contacts

- Jan Singleton
  - Food Science & Food Safety
  - jsingleton@csrees.usda.gov
- Ram Rao
  - Food Science & Food Technology
  - rrao@csrees.usda.gov
- Jodi Williams
  - Program Specialist
  - jwilliams@csrees.usda.gov

NRI Food Safety 32.0

- **Mechanisms of microbial contamination, toxin production, and microbial ecology**
- **Development of Pre- and Post- harvest intervention methods to mitigate the effects of microbial-based food borne illness**
- **Analysis and enhancement of economic opportunities for agricultural producers**
- **Enhance the knowledge of microbial ecology and development of practical mitigation measures for the reduction of food-borne illnesses**

Food Safety 32.0 - Stats

- **Approximately 20 % funding rate for Standard Proposals 2006**
- **Average award approx. $315 k**
- **Proposal # reduced 45% in 2006**
- **Maximum award now $400 k**
- **Funding level unchanged $4.7 M**
- **Program Priorities adjusted yearly**

FS 32.0 – Program Priorities 2007

- **1) Human enteric viruses and *Vibrio* spp. associated with seafood: Proposed studies need to address imposition of mitigation measures aimed at reducing the incidence of human enteric viruses and *Vibrio spp.* in shellfish, finfish, and derived products. Focus on harvesting methods, post-harvest storage, or processing technologies should include practical methods to reduce pathogen load;**

- **2) Human enteric viruses, *E. coli* or *Salmonella spp.* on fresh fruits, nuts, and vegetables: Proposed studies need to address mitigation measures aimed at reducing colonization by these pathogens or cross contamination during packaging and processing of fresh produce, including fruits, nuts, vegetables, and sprouts which undergo minimal processing post-harvest; multiplication on or within produce; or sensor/detection methodologies linked to practical mitigation measures. Studies elucidating the source and persistence of pathogens in the environment as they relate to fresh produce are included; and**

- **3) *Salmonella spp.* or *Campylobacter spp.* in poultry and swine: Proposed studies need to address the pathogen load of *Salmonella spp.* or *Campylobacter spp.* on farm and the methods of transmission to poultry and swine; effective mitigation measures during processing and distribution; or genetics of strain development for antibiotic resistance and other virulence determinants.**

NRI Food Safety 32.0

- **improved or novel detection methods for the designated microorganisms:**
  - **direct value in mitigating, reducing, or managing the offending agent or disease causing entity, or in providing a greater understanding of the routes of food contamination and the biology of the offending agent.**
  - **Research aimed solely at development of a detection methodology will not be considered for review. Applicants are encouraged to speak with the National Program Leader before submission of applications regarding detection methodologies. Coordinating the proposed study with the appropriate industry is highly recommended.**

Long Term Goals

- **Enhance the knowledge of microbial ecology and development of practical mitigation measures for the reduction of food-borne illnesses**
- **Provide for science-based assessment of food-contaminant related trade barriers**, including

FS 32.0 - Contact Information

- Chris A. Wozniak, Ph.D. – National Program Leader, cwozniak@csrees.usda.gov ; 202-401-6020

- Paularie Knox, Program Specialist, pknox@csrees.usda.gov ; 202-401-1950